

Animal Science

Merit Badge Workbook

Merit badges are earned by doing: reading the pamphlet, practicing the skills, and showing your counselor what you have learned.
This workbook gives you a place to organize your notes and track your progress along the way.
Merit badge counselors may not require the use of this or any similar workbook.
You still must satisfy your counselor that you can demonstrate each skill and have learned the information.
Use the space under each requirement to note what you have done and what you want to talk about, not to write out full answers.
When a requirement says discuss, show, tell, explain, or demonstrate, that is what you must do.
No one may add to or subtract from the official requirements found on scouting.org (Guide to Advancement 7.0.4.8).
Scouting America last updated this badge's requirements page on December 29, 2025.
Requirements change from time to time. Double-check scouting.org before you start.

Scout's name: _____ Unit: _____ Date started: _____

Counselor's name: _____ Phone no.: _____ Email: _____

Links marked "Scouting America resources" are the ones Scouting America shares on its official badge page.
This workbook is unofficial and not endorsed by Scouting America.

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1. Name two breeds of livestock in each of the following classifications: horses, dairy cattle, beef cattle, sheep, hogs, poultry, and goats. Tell their principal uses and merits. Tell where the breeds originated.

Scouting America resources: Different Types of Cattle Breeds Every Farmer Should Know (video) · Ten Popular Horse Breeds (video) Top 5 Best Sheep Breeds for Meat, Wool and Milk Production (video) · The 15 Best Pig Breeds for Your Farm (video) 5 Types of Chickens You Should Know About (video) · Top 10 Best Goat Breeds for Milk & Meat Production (video)

Two breeds in each classification

Classification	Breed	Principal uses and merits	Where it originated
Horses			
Horses			
Dairy cattle			
Dairy cattle			
Beef cattle			
Beef cattle			
Sheep			
Sheep			
Hogs			
Hogs			
Poultry			
Poultry			
Goats			
Goats			

Requirement 1 completed on _____ counselor initials _____

2. List two diseases that afflict the animals in each of the classifications in requirement 1. Describe the symptoms of each disease and explain how each is contracted and how it could be prevented.

Scouting America resources: Common Cattle Diseases: Treatment and Prevention (video) · Health Problems in Horses (video) 20 Diseases of Goats and Sheep You Need to Know (video) · Hidden Truth About Common Diseases of Pigs (video) Unveiling the Dark Secrets of Common Poultry Diseases (video)

Two diseases in each classification

Classification	Disease	Symptoms	How it is contracted	How it could be prevented
Horses				
Horses				
Dairy cattle				
Dairy cattle				
Beef cattle				
Beef cattle				
Sheep				
Sheep				
Hogs				
Hogs				
Poultry				
Poultry				
Goats				
Goats				

Requirement 2 completed on _____ counselor initials _____

3. Draw models of the digestive tracts of ruminants, horses, pigs, and poultry. Explain how the differences in structure and function among these types of digestive tracts affect the nutritional management of these species.

Scouting America resources: Digestion in Grass Eating Animals (video) · The Horse's Digestive System (video) Types of Livestock Digestive Systems (video)

My models of the four digestive tracts (draw here or attach a page)

How the differences affect nutritional management

Species	Structure and function of the digestive tract	How it affects feeding and nutrition
Ruminants		
Horses		
Pigs		
Poultry		

Requirement 3 completed on _____ counselor initials _____

4. Select one type of animal: beef cow, dairy cow, horse, sheep, goat, or hog, or a poultry flock, and tell how you would properly manage it. Include in your discussion nutritional (feeding) concerns, housing, disease prevention, waste control/removal, breeding programs, and biosecurity as appropriate.

Scouting America resources: Raising Dexter Cattle for Beef: Everything You Ever Wanted to Know (video)
How To Raise a Dairy Cow: Step-by-Step Guide for Beginners! (video) · How To Raise Sheep for Beginners on 2.5 Acres or Less (video)
Raising Goats 101 (video) · An Introduction to Raising Pigs on Pasture (video)
10 Things To Know Before You Buy Backyard Chickens (video)

The animal or flock I chose _____

How I would properly manage it

Topic	How I would manage it
Nutritional (feeding) concerns	
Housing	
Disease prevention	
Waste control/removal	
Breeding programs	
Biosecurity	

Requirement 4 completed on _____ counselor initials _____

5. Do the following:

(a) Explain how agricultural producers make desired improvements to their stock through breeding practices and programs.

Scouting America resources: How to Breed a Better Chicken (video)

How producers improve their stock through breeding

(b) Explain the terms pure breeding and cross breeding.

Scouting America resources: How Crossbreeding Works—How to Move From Hybrid Goats to Pure Pedigree Lines in Goat Farming (video)

Term	What it means
Pure breeding	
Cross breeding	

(c) List two modern technologies used in the production of horses, dairy cattle, beef cattle, sheep, hogs, poultry, or goats, and tell what the advantages are of using the technology.

Scouting America resources: Using Nuclear Science to Improve Animal Breeding (video)
Improving Health & Fertility for Each Cow With MooMonitor+ (video)
From Satellites to Sound: Practical AI Tools for Dairy and Poultry Farming (video)

Two modern technologies

Technology	Animals it is used with	Advantages of using it

Requirement 5 completed on _____ counselor initials _____

6. Complete ONE of the following options:

☐ **Option A—Beef Cattle. Do ALL of the following:**

(1) Visit a farm or ranch where beef cattle are produced under any of these systems: feeding market cattle for harvest, cow/calf operation (producing cattle for sale to commercial feeders), or producing purebred cattle for sale as breeding stock to others. Talk with the operator to learn how the cattle were handled, fed, weighed, and shipped. Describe what you saw and explain what you learned. If you cannot visit a cattle ranch or farm, view a video from a breed association, or research the internet (with your parent or guardian's permission) for information on beef cattle production. Tell about your findings.

Scouting America resources: A Tour of Our Cattle Ranch - 20,000+ Head of Cattle per Year (video)

Farm, ranch, video, or website _____ Date _____

Which system the cattle are produced under _____

What I learned from the operator

How the cattle were	What I learned
Handled	
Fed	
Weighed	
Shipped	

What else I saw and learned

(2) Sketch a plan of a feedlot to include its forage and grain storage facilities, and loading chute for 30 or more fattening steers; or sketch a corral plan with cutting and loading chutes for handling 50 or more beef cows and their calves at one time.

Scouting America resources: Planning and Designing Cattle Feedlots (PDF) · Corral and Working Facilities for Beef Cattle (PDF)

My feedlot plan or corral plan (draw here or attach a page)

(3) Make a sketch showing the principal wholesale and retail cuts of beef. Tell about the U.S. Department of Agriculture (USDA) dual grading system of beef. Tell the basis of each grade in each system.

Scouting America resources: Basic Meat Cuts & Grades (video) · Types of Beef Cuts (website)
Beef Wholesale and Retail Cuts (PDF)

My sketch of the wholesale and retail cuts of beef (draw here or attach a page)

The USDA dual grading system and the basis of each grade

(4) Define the following terms: bull, steer, bullock, cow, heifer, freemartin, heiferette, and calf.

Scouting America resources: What's the Difference Between a Steer vs. Bull? Cow vs. Heifer? (video)
How to Tell If Cattle Are Cows, Bulls, Heifers, or Steers (website)

Term	What it means
bull	
steer	
bullock	
cow	
heifer	
freemartin	
heiferette	
calf	

☐ **Option B—Dairy. Do ALL of the following:**

(1) Tell how a cow or a goat converts forage and grain into milk. Explain the differences in feeds typically used for dairy cows versus those fed to beef cows.

Scouting America resources: How Cows Create Milk—3D Animated Tour (video) · What Cows Eat To Produce Milk (video)
How To Feed a Beef Cow (Corn vs Hay) (video)

How a cow or a goat converts forage and grain into milk

Feeds typically used

Animals	Feeds
Dairy cows	
Beef cows	

(2) Make a chart showing the components in cow's milk or goat's milk. Chart the amount of each component.

Scouting America resources: Milk Components Chart (PDF) · Milk 101: Nutrition Facts and Health Effects (website)
Goat's Milk: Is This the Right Milk for You? (website)

The milk I charted (cow's or goat's)

My chart of the components in milk

Component	Amount

(3) Explain the requirements for producing grade A milk. Tell how and why milk is pasteurized.

Scouting America resources: What Is Pasteurization? (video)

Requirements for producing grade A milk

How and why milk is pasteurized

(4) Tell about the kinds of equipment used for milking and the sanitation standards that must be met on dairy farms.

Scouting America resources: How Are Cows Actually Milked? Explained by a Dairy Veterinarian (video)

Kinds of equipment used for milking

Sanitation standards that must be met on dairy farms

(5) Define the following terms: bull, cow, steer, heifer, springer, buck, doe, and kid.

Scouting America resources: Goat Terminology (website)

Term	What it means
bull	
cow	
steer	
heifer	
springer	
buck	
doe	
kid	

(6) Visit a dairy farm or a milk processing plant. Describe what you saw and explain what you learned. If you cannot visit a dairy farm or processing plant, view a video from a breed or dairy association, or research the internet (with your parent or guardian's permission) for information on dairying. Tell about your findings.

Scouting America resources: Guided Barn Tour! Modern Dairy Farm Tour (Part 1) (video)
Robotic Dairy Barn Tour (Part 2)—The One You've Been Asking For (video)
How They Process Milk In Factory With Modern Food Processing Technology | How It's Made (video)

Dairy farm, plant, video, or website _____ Date _____

What I saw and what I learned

☐ **Option C—Horse. Do ALL of the following:**

(1) Make a sketch of a useful saddle horse barn and exercise yard.

My saddle horse barn and exercise yard (draw here or attach a page)

(2) Tell about the history of the horse and the benefits it has brought to people. Using the four breeds of horses you chose in requirement 1, discuss the different special uses of each breed.

Scouting America resources: How Horses Went From Food to Friends (video) · How Horses Took Over North America (Twice) (video)
Where Did Domesticated Horses Come From? (video)

The history of the horse and the benefits it has brought to people

Special uses of the horse breeds I chose in requirement 1

Breed	Special uses

(3) Define the following terms: mare, stallion, gelding, foal, colt, filly; mustang, quarter horse, draft horse, pacer, trotter; pinto, calico, palomino, roan, overo, and tobiano.

Scouting America resources: What's the Difference Between a Mare, Stallion, Gelding, Colt, and a Pony? (video)
Understanding Common Horse Terms (video) · 10 Facts About Mustang Horses That Make Them So Special (website)
Draft Horse vs Quarter Horse: Comprehensive Comparison Guide (website)
The Different Coat Patterns Found in Horses & How to Identify Them (website)

Term	What it means
mare	
stallion	
gelding	
foal	
colt	
filly	
mustang	
quarter horse	
draft horse	
pacer	
trotter	
pinto	
calico	
palomino	
roan	
overo	
tobiano	

(4) Visit a horse farm. Describe what you saw and explain what you learned. If you cannot visit a horse farm, view a video from a breed association, or research the internet (with your parent or guardian's permission) for information on horses. Tell about your findings.

Scouting America resources: Inside Claiborne Farm—Home of Secretariat & Racing Legends (video)

Horse farm, video, or website _____ Date _____

What I saw and what I learned

(5) Outline the proper feeding of a horse doing light work. Explain why the amount and kind of feed will change according to the kind of horse and the work it does. Describe what colic is, what can cause it, and its symptoms.

Scouting America resources: The 7 Golden Rules of Feeding Horses (video)
Colic in Horses: Horse Vet Explains What Owners Should Know (video)

My outline of the proper feeding of a horse doing light work

Why the amount and kind of feed change with the kind of horse and its work

Colic

About colic	What I found out
What it is	
What can cause it	
Its symptoms	

☐ **Option D—Sheep or Goat. Choose one and do ALL of the following based upon the choice:**

(1) Make a sketch of a live lamb or goat. Show the location of the various wholesale and retail cuts.

Scouting America resources: Lamb & Goat Cuts (video) · Types of Lamb Cuts (website)

My choice for Option D (sheep or goat)

My sketch of a live lamb or goat showing the wholesale and retail cuts (draw here or attach a page)

(2) Discuss how wools are sorted and graded.

Scouting America resources: Mid States Wool: Grading Process (video) · British Wool—Wool Grading and Selling at Auction (video)

How wools are sorted and graded

(3) List products that can be made from the milk.

Scouting America resources: Dairy Products List: 50+ Dairy Foods (What Counts As Dairy?) (website)

Products that can be made from the milk

(4) Based on your choice, do ONE of the following:

☐ **(a)** Raise a lamb or goat from weaning to market weight. Keep records of feed intake, weight gains, medication, vaccination, and mortality. Present your records to your counselor for review.

Scouting America resources: Lamb or Goat Record Book (PDF) · Sheep Record Book (PDF)

Lamb or goat I raised _____ Date weaned _____

My records (add pages as needed)

Date	Feed intake	Weight gain	Medication	Vaccination	Mortality

Date I presented my records to my counselor _____

☐ **(b)** Visit a farm or ranch where sheep or goats are raised. Describe what you saw and explain what you learned. If you cannot visit a sheep or goat farm or ranch, view a video from a breed association, or research the internet (with your parent or guardian's permission) for information on sheep or goats. Tell about your findings.

Scouting America resources: Redwood Hill Goat Farm: The Land of Happy Goats! (video)
Flax Family Farms—Utica Kansas (video)
1000 Sheep: Expert Farmer Interview and Farm Tour of Slatted Shed, Handling System and Sheep (video)

Farm, ranch, video, or website _____ Date _____

What I saw and what I learned

(5) Define the following terms for a sheep (wether, ewe, ram, and lamb) OR a goat (doe, nanny, kid, buck, and billy).

Scouting America resources: Sheep Terminology (website) · Goat Terminology (website)

Sheep terms (if I chose sheep)

Term	What it means
wether	
ewe	
ram	
lamb	

Goat terms (if I chose goat)

Term	What it means
doe	
nanny	
kid	
buck	
billy	

☐ **Option E—Hog. Do ALL of the following:**

(1) Make a sketch showing the principal wholesale and retail cuts of pork. Tell about the recommended USDA grades of pork. Tell the basis for each grade.

Scouting America resources: Retail Cuts of Pork (PDF) · Types of Pork Cuts (website)

My sketch of the wholesale and retail cuts of pork (draw here or attach a page)

The recommended USDA grades of pork and the basis for each grade

(2) Outline in writing the proper feeding programs used from the breeding of a gilt or sow through the weaning of the litter. Discuss the feeding programs for the growth and finishing periods.

Scouting America resources: Swine Nutrition Guide (website) · Feeding Kunekunes (website)

Feeding programs from the breeding of a gilt or sow through the weaning of the litter

Feeding program for the growth period

Feeding program for the finishing period

(3) Do ONE of the following:

☐ **(a)** Raise a feeder pig from weaning to market weight. Keep records of feed intake, weight gains, medication, vaccination, and mortality. Present your records to your counselor for review.

Scouting America resources: Pig Project Record Book (PDF)

Date weaned _____ Date it reached market weight _____

My records (add pages as needed)

Date	Feed intake	Weight gain	Medication	Vaccination	Mortality

Date I presented my records to my counselor _____

☐ **(b)** Visit a farm where hogs are produced, or visit a packing plant handling hogs. Describe what you saw and explain what you learned. If you cannot visit a hog production unit or packing plant, view a video from a packer or processor, or research the internet (with your parent or guardian's permission) for information on hogs. Tell about your findings.

Scouting America resources: The Industrial Meat Machine: How Thousands of Pigs Are Processed Daily (video)

Hog farm, packing plant, video, or website _____ Date _____

What I saw and what I learned

(4) Define the following terms: gilt, sow, barrow, and boar.

Scouting America resources: Pigtionary (PDF)

Term	What it means
gilt	
sow	
barrow	
boar	

☐ **Option F—Avian. Do ALL of the following:**

(1) Make a sketch of a layer house or broiler house showing nests, roosts, feeders, waterers, and means of ventilation. Explain how insulation, ventilation, temperature controls, automatic lights, and other environmental controls are used to protect birds from heat, cold, and bad weather. Explain the importance of light for egg production.

Scouting America resources: Designing Layer Houses: Buildings, Dimensions, and Cage Arrangements (website)
Guidelines for Constructing a Broiler House: Area, Dimensions, and Construction Tips (website)

My sketch is of a (layer house or broiler house) _____

My sketch with nests, roosts, feeders, waterers, and ventilation (draw here or attach a page)

How environmental controls protect birds from heat, cold, and bad weather

Control	How it is used
Insulation	
Ventilation	
Temperature controls	
Automatic lights	
Other environmental controls	

Why light is important for egg production

(2) Explain why overcrowding is dangerous for poultry flocks.

Scouting America resources: The #1 Mistake Chicken Keepers Make (video)

Why overcrowding is dangerous for poultry flocks

(3) Tell about the grading of eggs. Describe the classes of chicken meat.

Scouting America resources: The Difference Between Grade AA, A, and B Eggs (video) · A Guide to U.S. Graded Chicken (website)

The grading of eggs

The classes of chicken meat

(4) Do ONE of the following:

☐ **(a)** Manage an egg-producing flock for five months. Keep records of feed purchased, eggs sold, medication, vaccination, and mortality. Present your records to your counselor for review.

Scouting America resources: Egg Producing Record Book (Fillable) (PDF)

My records (add pages as needed)

Month	Feed purchased	Eggs sold	Medication	Vaccination	Mortality
Month 1					
Month 2					
Month 3					
Month 4					
Month 5					

Date I presented my records to my counselor

☐ **(b)** Raise five chickens from hatching. Keep records of feed intake, weight gains, medication, vaccination, and mortality. Present your records to your counselor for review.

Scouting America resources: Chicken Growth Record Book (PDF)

Hatch date

My records (add pages as needed)

Date	Feed intake	Weight gains	Medication	Vaccination	Mortality

Date I presented my records to my counselor

☐ **(c)** Visit a commercial avian production facility. Describe what you saw and explain what you learned. If you cannot visit a commercial facility, view a video from a poultry association, or research the internet (with your parent or guardian's permission) for information on poultry production. Tell about your findings.

Scouting America resources: Inside the Chicken Factory: Processing Millions of Chickens for Meat (video)

Facility, video, or website Date

What I saw and what I learned

(5) Define the following terms: chick, pullet, hen, cockerel, cock, and capon.

Scouting America resources: Chick-Tionary (website / video)

Term	What it means
chick	
pullet	
hen	
cockerel	
cock	
capon	

Requirement 6 completed on counselor initials

7. Find out about three career opportunities in animal science. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Scouting America resources: Beef Industry—Careers in Animal Sciences (video) · Dairy Industry—Careers in Animal Sciences (video)
Dr. Shannon Pratt Phillips, Department of Animal Science (video) · Swine Industry—Careers in Animal Sciences (video)
Poultry Industry—Careers in Animal Sciences (video) · NC State Veterinary Medicine | Extraordinary Opportunity (video)
10 Rewarding Careers Working With Horses (video) · 30 Jobs for Animal Science Majors (Taming the Job Jungle) (website)

Three careers in animal science

Career	What I found out about it

The one I picked

What it takes	What is required
Education	
Training	
Experience	

Why this profession might interest me

Requirement 7 completed on counselor initials

Counselor sign-off

Your counselor signs your blue card or approves the badge in Scoutbook, and your unit records it. This line is for your own records.

Counselor's signature Date completed

Official Scouting America resources

Scouting America resources: Animal Science merit badge page (requirements and resources)
Animal Science merit badge pamphlet (free PDF) · All merit badges

Made by Cole at ScoutSmarts.com, an Eagle Scout who loves helping Scouts.
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